

NUCLEAR DECOMMISSIONING CITIZENS ADVISORY PANEL PUBLIC SERVICE DEPARTMENT

Nuclear Decommissioning Citizens Advisory Panel Annual Report to the Governor and the Vermont Legislature

2022

Published: January <u>2023</u> (DRAFT for Panel Review on December 12, 2022)

Note that text appearing in Yellow Highlight indicates a placeholder paragraph or section that will be replaced after the Panel's December 12 Meeting

(DRAFT Version as of 12/01/2022)

1 2	- Nuclear Decommissioning Citizens Advisory Panel - 2022 Annual Report to the Governor of Vermont and the
3	Energy Committees of the General Assembly
4	(House Energy & Technology,
5	House Commerce & Economic Development,
6	House Natural Resources, Fish and Wildlife, and
7	Senate Natural Resources & Energy Committees)
8	
9	I. Statutory Authority and Duties
10	
11	The nineteen-member Vermont Nuclear Decommissioning Citizens Advisory Panel ("NDCAP" or
12	the "Panel") was established during the 2014 Legislative Session as part of Act 179 (Section E.233
13	pages 141 through 148 of the Act). Details on the original membership and duties of NDCAP were
14	outlined in this Act., which is available online at:
15	https://legislature.vermont.gov/Documents/2014/Docs/ACTS/ACT179/ACT179%20As%20Enactions/
16	<u>ted.pdf</u> .
17	
18	Current Membership and duties of NDCAP were established during the 2021 legislative session as
19	part of Act 54, (Section 13, pages 11 through 16 of the Act). Details on the current membership
20	and duties of NDCAP are available online at:
21	https://legislature.vermont.gov/statutes/fullchapter/18/034.
22	
23	The list of current members of the Nuclear Decommissioning Citizens Advisory Panel may be
24	found at http://publicservice.vermont.gov/electric/ndcap (aka, the NDCAP website). Changes in
25	Panel membership during 2022 may be discerned by reviewing the meeting minutes and meeting recordings available at the NDCAP website. The Panel's second representative for the Town of
26 27	Vernon (created in Act 54 of the 2021 Legislature) assumed office in time for the February 28 Full
28	Panel Meeting. As of September 1, the Panel's second citizen-appointee by the Vermont House
29	Speaker is vacant. The two optional Panel representatives for Massachusetts and New Hampshire
30	towns near the Vermont Yankee site were vacant throughout 2022.
31	towns near the vormant runnes site were vacant an oaghout 2022
32	II. Charter
33	
34	The NDCAP Charter was adopted on February 25, 2015 and was amended on May 26, 2016. The
35	current Charter is available at: NDCAP Charter as of 2016.05.26. The Charter is also available on
36	the NDCAP website Main Page at:
37	https://publicservice.vermont.gov/electric/ndcap
38	
39	No changes to the NDCAP Charter were made during 2022. However, changes to the NDCAP
40	Charter may be necessary due to the changes in Panel membership and duties implemented in

<u>ACT 54 of the 2021 Legislative Session</u>. Where any discrepancies between Act 54 language and NDCAP Charter exist, the Act 54 language takes precedence.

III. Meeting Highlights

The NDCAP held five meetings in 2022; meetings were held in January, February, May, September, and December. All meetings were open to the public and opportunities for public comments were provided. Because of the continuing COVID-19 pandemic, the February, May, September, and December meetings were conducted entirely as webcasts, as was permitted by ACT 78 of the 2022 Legislative Session. (These webcasts were conducted via Zoom using services provided by Brattleboro Community Television.) The January meeting was conducted primarily as Microsoft Teams webcast. However, in compliance with Open Meeting Law, a physical meeting space was available in downtown Brattleboro for this meeting.

 The May, September, and December meetings included updates on recent VY decommissioning activities by both NorthStar and the State of Vermont. Educational and issue-specific topics were also discussed at these meetings. The January and February meetings each focused on dedicated topics that had previously been identified at the Panel's December 2021 meeting. Opportunities for discussion and comments from Panelists and the public on all covered topics were provided during each meeting. A summary of each meeting is presented below.

The minutes of each meeting can be found on the NDCAP website (a dedicated section of the Public Service Department website) at http://publicservice.vermont.gov/electric/ndcap. A complete video or webcast recording for each meeting can be found at: https://www.brattleboroty.org/vt-nuclear-decommissioning-citizens-advisory-panel.

Links to these video recordings are also available through the NDCAP website. Additional information regarding VY's active decommissioning is available at the Public Service Department's "VY Decommissioning" website at:

https://publicservice.vermont.gov/content/vermont-yankee-decommissioning.

January 10, 2022

The primary purpose of this meeting (as agreed upon at the Panel's December 2021 meeting) was to review and potentially approve the Panel's 2021 Annual Report to the Vermont Legislature. The draft Annual Report that was considered is available in the "Meeting of January 10, 2022" materials section on the Panel website (https://publicservice.vermont.gov/electric/ndcap). Several minor changes based on Panel and public feedback were incorporated after discussion during the meeting. Several additional comments from Panelist Lissa Weinmann were not incorporated after several Panelists expressed concern that the comments would introduce significant additional detail that had not had opportunity for review by other Panelists.

After additional discussion, consensus was reached that shorter versions of these comments could be incorporated into the report. Further details on Panel activities could be provided at the request of the Legislature. Details of the additional comments are available in the January 10 meeting minutes and the "Meeting of January 10, 2022" materials section on the Panel website.

The revised 2021 Annual Report was approved by the Panel by a 10-0 vote (with 2 abstentions) and is available at:

https://publicservice.vermont.gov/content/2021-annual-report

The Panel also discussed and approved a breakdown of the Panel's FY 2022 budget. The approved breakdown is available at:

https://publicservice.vermont.gov/sites/dps/files/documents/NDCAP 2022 Approved Budget.p df.

Because this meeting occurred prior to the passage of <u>ACT 78 of the 2022 Legislative Session</u>, this was the Panel's only meeting in 2022 in which a physical meeting location was designated. While one Panelist attended the meeting from this location, all members of the public in attendance joined the meeting via webcast.

February 28, 2022

The primary purpose of this meeting (as agreed upon at the Panel's December 2021 meeting) was to consider the US Department of Energy's (DOE's) request for comments on a Consent-Based Siting process for selecting potential spent nuclear fuel (high-level radioactive) waste repositories within the continental United States. The meeting featured a presentation with a questions and answers period with Dr. Kim Petry, DOE Acting Deputy Assistant Secretary for Spent Fuel and Waste Disposition. Several additional DOE Office of Nuclear Energy officials also attended this meeting to answer questions. Additionally, Dr. Thomas Webler of the Social & Environment Research Institute outlined research that he has conducted regarding the development of Consent-Based Siting processes for spent nuclear fuel disposal facilities.

Presentations provided for these discussions are available in the "Meeting of February 28, 2022" materials section on the Panel website. Details on DOE's Consent-Based Siting effort is available from the following DOE website: https://www.energy.gov/ne/consent-based-siting.

DOE discussion and responses to questions emphasized that the Department of Energy is not currently seeking volunteer communities for hosting a spent nuclear fuel repository. The current effort is a first step to develop the process by which a potential host community can engage with the DOE to learn more about potentially hosting repository. The current process is geared towards siting a Consolidated Interim Spent Fuel Storage Facility because the DOE currently has Congressional funding to pursue a Consolidated Interim Storage Facility (CISF). The purpose of the Consent-Based Siting effort is to build trust between DOE and potential facility host

communities. DOE will regard the Consent-Based Siting effort to be successful if communities express interest in hosting a facility. The process will still be considered successful if a community expresses interest, learns more about hosting a facility, but later withdraws from the process. Responses provided to the Consent-Based Siting questionnaire will drive DOE's next steps, with the intent of providing a just selection process.

Dr. Webler's presentation noted that consent means different things to different people. With regards to siting a spent fuel storage facility, there are four general views on consent:

- a) The "Expedient Yes" view siting is acceptable when a good science and safety case are available
- b) The "Acceptance to Gain Trust" view independent oversight is need for the siting to work; this oversight develops from the grass-roots level.
- c) The "Inclusion and Transparency" view a facility power share between DOE and the host community is needed. The community needs independent confirmation of DOE-reported status, usually through the community hiring its own experts.
- d) The "Demonstrate Legitimacy" view DOE must show that it is listening to community feedback on the process. Time must be taken to "do it right."

Further details on the discussions with the DOE Officials and Dr. Webler are available in the meeting minutes and meeting recording available in the "Meeting of February 28, 2022" materials section on the Panel website.

A draft Advisory Opinion offered by the Panel's Federal Nuclear Waste Policy Committee in response to DOE's Consent-Based Siting questionnaire was then discussed. Based on the presentations provided earlier in the meeting and after hearing feedback from members of the public, the Panel voted to approve this Advisory Opinion. The Approved Advisory Opinion is available from the Panel's website at:

https://publicservice.vermont.gov/content/vt-ndcap-response-doe-consent-based-siting-rfi.

The Approved Advisory Opinion is included in Appendix A of this report. The Approved Advisory Opinion was submitted to the US Department of Energy as a public comment on its Consent-Based Siting Process. The DOE received 225 comments in response to its questionnaire. These

comments are available from the following DOE website:

https://www.energy.gov/ne/articles/responses-rfi-using-consent-based-siting-process-identify-

federal-interim-storage in the document listed as "Public Responses to RFI." The Approved

Advisory Opinion appears on pages 379 through 383 in this document. The Vermont State

Nuclear Engineer, Tony Leshinskie, filed additional comments on behalf of the Vermont Public

Service Department. These comments appear on pages 1026 through 1035 in the "Public

Responses to RFI" document.

May 9, 2022

The Panel's first regular meeting of the year occurred on May 9. Unlike the January 10 and February 28 that focused on the 2021 Annual Report and DOE's Consent-Based Siting Process, respectively, the May 9 meeting was the first 2022 Panel meeting in which NorthStar and several State Agencies summarized VY decommissioning activities during the current calendar year.

• NorthStar Update on VY Site Decommissioning Activities:

Panelist Corey Daniels, VY's Senior Spent Fuel Storage Manager, summarized decommissioning activities completed since December 2021. (Slides for this presentation are available from the Panel's website.) Reactor Vessel (RV) segmentation has progressed to segmenting the cylindrical portion of the RV itself. was described. Grout has been injected into the RV lower dome to simplify collecting of metal shavings produced by the segmentation. Recent equipment removals from the Reactor Building include Hydraulic Control Unit components, Control Rod Pump system components, and the Stand-By Liquid Control tanks. Creation of a new accessway between the Reactor and Turbine Buildings was described. Removal of components at the River Intake and Discharge Structures continue; most recently, the Discharge Pumps were removed.

On May 1, the electrical feed from VY's Start-Up Transformers was disconnected, which transitioned the Power Block (Reactor, Turbine, Control Room, and Service) Buildings to a "Cold and Dark" condition. Going forward, electricity to these buildings will be supplied through a temporary power bus or via portable diesel generators, as needed. Achieving Cold and Dark conditions is a major milestone for the decommissioning project. All station power lines in the Power Block Buildings are now abandoned, which allows for a "rapid but controlled" removal of wiring and cable trays. Over 40 miles of wiring must be removed.

• Public Service Department (PSD) Update:

PSD Special Counsel Eric Guzman outlined PSD's fiscal oversight of the VY Decommissioning project required by the Memorandum of Understanding (MOU) in effect as part of NorthStar's purchase of VY. Nick Capik and Mark Gymr of Four Points Group (FPG), PSD's consultants for overseeing the project, were also present to provide additional information, as needed. (Slides for this presentation are available from the Panel's website.)

PSD's financial and technical oversight role was outlined, which includes receiving updates on work completed versus work remaining and project expenditures versus funds remaining. PSD coordinates with other State Agencies and FPG to assess project status and whether decommissioning trust fund reimbursement requests are consistent with the work completed. PSD also meets with NorthStar regularly to conduct any follow-up necessary on NorthStar's self-reporting. Regular site visits by FPG are conducted to observe completed work. The most recent visit was on May 5. The site visits continue to show that project progress is consistent with that described in NorthStar's status reports. NorthStar remains on track to complete the project in 2026 with the currently available funding.

NorthStar's required project Annual Financial Disclosures were received by their March 31 deadline and are currently under review by PSD, Agency of Natural Resources, Department of Health, and the Attorney General's Office. These reviews thus far have not raised any causes for concern for completing the VY decommissioning project as expected

Department of Environmental Conservation (DEC) Update:

Graham Bradley, Hazardous Sites Manager in DEC's Waste Management and Prevention Division outlined the Agency of Natural Resources (ANR) / DEC's recent interactions with VY. (Slides for this presentation are available from the Panel's website.) Regular status calls (usually on a biweekly basis), draft permit and corrective action plan reviews continue. DEC continues to work closely with NorthStar's remediation contractor, Haley & Aldrich, to address contaminant issues in previously identified Areas of Concern (AOCs). No new contamination areas have been found onsite. Samplings at the former Cooling Tower sites were described. No contaminations have been identified, but sampling will continue. Volatile Organic Compounds (VOCs) sampling near the Turbine Building has identified two sites requiring clean-up. These were expected since vehicle fuels were stored in these areas. Contaminated soil detected near the former East Cooling Tower Transformer site was removed and used as ballast in a radioactive waste shipment sent to Waste Control Specialists (WCS).

• **During Panel Questions**: Marvin Resnikoff asked about the status of VY's Greater-than-Class C (GTCC) waste. Corey Daniels replied that all GTCC has been downsized and packaged for placement in the Non-Fuel Waste Container that will eventually be moved to VY Independent Spent Fuel Storage Installation (ISFSI, aka VY's Dry Cask Storage Pads). The GTCC waste packaging is currently in the Spent Fuel Pool. The move to the ISFSI will likely take place in October or so (later restated as between August and October). However, the move will not occur until RV disassembly is complete. The GTCC waste move requires the Reactor Building Crane which is currently essential to the RV disassembly work. The Spent Fuel Pool will be decommissioned once the GTCC waste move is complete.

• In Response to Questions from the Public: Corey Daniels clarified that all spent fuel transfers to the ISFSI were completed in 2018. (This evening's discussions addressed waste from RV segmentation.) All GTCC waste continues to be stored onsite. Mr. Daniels also clarified that pipes at depths 4 feet below grade can be reamed out and sealed rather than removed. However, any piping having radiological contamination will be removed. It was also noted that High Efficiency Particulate Air (HEPA) filters are used during the RV segmentation process to assure that a cool, clean air supply is available to workers in the Reactor Building. The HEPA filters assure that any potential particulates are removed from the building air.

• In Early General Public Comments: The Panel was asked to improve its public outreach. State Nuclear Engineer Tony Leshinskie outlined the press release distribution process that normally occur prior to any NDCAP meeting. He also noted that he now directly controls updates to the Panel website and is using the opportunity to improve its organization. Comments and

suggestions for website improvements are sought, which can be sent to the Panel's email address (PSD.NDCAP@vermont.gov). Concern was also raised because the meeting thus far was being conducted without a quorum of Panel members present. Panelists who are frequently absent from meetings should be reminded of their duties and should consider resigning if they are unable to serve.

Panel Chair Emily Davis noted that because Legislature was called into session this evening on short notice, several Panelists became unexpectedly unavailable shortly before the meeting's start. She suggested that meeting attendance could be pursued through the Public Service Commissioner's Office. At this point, State Nuclear Engineer Tony Leshinskie noted that Panelist Bob Leach had recently joined the meeting webcast. The Panel now had a quorum for the meeting (which subsequently allowed the Panel to formally approve meeting minutes for the December 2021, January and February meetings).

• Discussion of Federal Nuclear Waste Policy (FNWP) Committee Activities:

Lissa Weinmann, Chair of the Panel's Federal Nuclear Waste Policy Committee, briefly described the Committee's most recent activities. Representatives from Deep Isolation, Inc. outlined their proposed alternative for geologic spent fuel repositories at the Committee's March 28 meeting. (Details of this proposal are discussed in Section XI.B of this report.) The Committee will meet again on May 23. Tony Leshinskie is working on having representatives from Holtec International attend this meeting to discuss their current plans for long-term monitoring and aging management for dry cask storage systems, such as those currently used at the VT Yankee site.

• **During General Public Comments:** The Panel was asked to do more to publicize its recent Advisory Opinion on Spent Nuclear Fuel disposal, as this work is very important. The Legislature, Governor's Office, relevant State Agencies, and Vermont's Congressional Delegation must be kept apprised of Panel activities, particularly when Advisory Opinions are published.

September 19, 2022

 Much like the Panel's May 9 meeting, the September 19 meeting largely consisted of reports from NorthStar and several State Agencies on recent VY decommissioning activities. Several Panel administrative items were also discussed. With 11 Panelists in attendance at the start of the meeting (a twelfth Panelist joined late), a quorum was present throughout the meeting (9 Panelists required for quorum).

• NorthStar Update on VY Site Decommissioning Activities:

NorthStar Panelist Corey Daniels summarized decommissioning activities completed since May 2022. (Slides for this presentation are available from the Panel's website.) It was noted that the NorthStar continues to work without an OSHA Recordable Lost Time Accident since starting VT Yankee's active decommissioning in January 2019. The NRC has issued no cited violations, nor have there been any non-cited violations, during this time. Progress on dismantling Reactor

Building (RB) components and the demolition of other onsite structures was described. The Control Room and the RB Computer Room have been completely cleared of components. Approximately 40 miles of cabling has been cleared from the Cable Spreading Room. Demolition of the Control Block Building (which housed the Control and Computer Rooms) has begun. Preparations for Turbine Building demolition continue.

Excavation and downsizing of the Interim Off-Gas (IOG) System was discussed, as was land regrading at the Cooling Towers site. Progress on the new accessway between the Reactor and Turbine Buildings was described. A monorail system is being constructed to facilitate removal of the RB Torus structure through this accessway. Clearing of Torus structure internal components was described. Segmentation and removal of the Reactor Vessel (RV) has completed; the last several steps were described in detail. Demobilization of RV segmentation equipment is underway.

• Department of Environmental Conservation (DEC) Update:

Panelist Trish Coppolino, ANR / DEC Waste Management and Prevention Division Program Manager, outlined the Agency of Natural Resources (ANR) / DEC's recent interactions with VY. (Slides for this presentation are available from the Panel's website.) Regular status calls, draft permit and corrective action plan reviews continue. Sampling programs for non-radiological contaminants continue to show no significant contamination issues at the VY site. No unexpected site contaminations have been identified thus far. ANR/DEC continues to work closely with NorthStar's remediation contractor, Haley & Aldrich, and DEC's consultant, Atlas, on plans for addressing potential contaminant issues at VY's previously identified Areas of Concern (AOCs). DEC is currently reviewing VT Yankee's annual groundwater monitoring report, which was received in June as required. Due to ongoing structure demolitions onsite, DEC's groundwater monitoring program is currently down to four sampling wells. The monitoring program has collected data for over three years without identifying new causes for concern. Additional monitoring wells will be sampled as onsite demolitions complete.

Recent samplings for PFAS (per- and polyfluoroalkyl substances) have identified several contaminated locations (as expected). However, the environmental impacts are expected to be minor; the contamination levels are only slightly above EPA limits. Samplings for PCBs and Volatile Organic Compounds (VOCs) continue.

Corrective Action Plans for addressing contaminations in onsite AOC #5 and AOC #7 are currently available for public comments. These planned remediations, once fully approved, would occur sometime in 2023.

• Public Service Department (PSD) Update:

Jim Porter, PSD Director for Public Advocacy outlined PSD's fiscal oversight of the VY Decommissioning project required by the Memorandum of Understanding (MOU) in effect as part of NorthStar's purchase of VY. Nick Capik and Mark Gymr of Four Points Group (FPG), PSD's

consultants for overseeing the project, were also present to provide additional information, as needed. (Slides for this presentation are available from the Panel's website.) PSD's financial and technical oversight role was outlined similarly to the report provided at the May 9 Panel meeting. Regular site visits by FPG are conducted to observe completed work. The most recent visit was on July 18. The observed project progress was consistent with that described in NorthStar's most recent (May and June 2022) status reports.

Updates on the Decommissioning and Site Restoration Trust Funds were provided. As of August 31, approximately \$211.3 million remains in the Decommissioning Trust; approximately \$51.7 million remains in the Site Restoration Trust. As of August 30, the projected cost to complete Site Restoration is \$12.6 million. However, the projected cost to complete Decommissioning and License Termination is \$214 million, meaning that there is currently a shortage in the Decommissioning Trust Fund. PSD believes that the current Decommissioning Trust shortage is reflective of rising interest rate impacts on the Decommission Trust investments. The Decommissioning and Site Restoration Trust balances do not include the \$55 million Financial Assurance Escrow required by Paragraph 2(c) of the Memorandum of Understanding (MOU) established for VT Yankee's decommissioning. Overall, NorthStar remains on track to complete the project on schedule with the currently available funding

• Additional Agency Reports: Panelist Bill Irwin, Vermont Radiological & Toxicological Sciences Program Chief, reported that Vermont Department of Health continues to be satisfied with the reporting NorthStar has provided to date. The reports indicate that the project is moving forward reasonably and responsibly.

• **During Panel Questions**: In response to a question from Panelist Bill Irwin, Corey Daniels indicated that building intrusion water continues to be collected as necessary. The water is initially held in storage (frack) tanks and is then shipped offsite for disposal.

• In response to questions from the Public: Corey Daniels indicated that all radioactive materials shipped offsite are sent to Waste Control Specialists (WCS) facilities in Texas. However, some pre-release (non-radiological / non-hazardous) materials are shipped to industrial disposal facilities. He also clarified that some parts of the Reactor Vessel are being shipped offsite since they still qualify as Low-Level Radioactive waste. Only spent nuclear fuel qualifies as High-Level Radioactive Waste. The next most radioactive waste category, Greater Than Class C (GTCC) radioactive waste is the only low-level radioactive waste category that cannot be shipped. VY's GTCC waste consists of several Reactor Vessel internal components, but not the Reactor Vessel itself. VT Yankee's GTCC waste is expected to be moved to the onsite Spent Fuel Storage Facility (aka the Dry Cask Storage pads or ISFSI) within the next month.

In response to a question from State Nuclear Engineer Tony Leshinskie, Corey Daniels indicated that, with the completion of VY's Reactor Vessel segmentation, Orano's work on the VY decommissioning project is coming to an end. However, Orano is still responsible for some Spent

Fuel Pool clean-up items and several tasks related to transferring the GTCC Waste to the onsite ISFSI.

• In the Early General Public Comments: Ann Darling (Citizens Awareness Network) reiterated her comments at previous meetings that the Panel needs more public outreach. Citizens Awareness Network is open to assisting the Panel with this. Ms. Darling also noted that the Panel had problems meeting quorum at its last meeting. Vacancies on the Panel need to be filled.

In response to a question from Panelist Lissa Weinmann regarding the current decommissioning schedule, Corey Daniels indicated that that NorthStar still anticipates beating the 2030 decommissioning project deadline by a few years. Active decommissioning could complete in 2026. However, this early end date does not include time for completing all site release activities. Those would complete in 2027, assuming that ongoing decommissioning work continues to progress smoothly. NorthStar's overall goal is to do the decommissioning project right with the currently available funding. The project remains on track to be completed within the available budget.

Panelist Chris Campany noted that the Statute establishing the Panel will need to be revisited once active decommissioning is complete. State Nuclear Engineer Tony Leshinskie added that the Yankee Rowe Spent Fuel Storage Facility's Community Advisory Panel could serve as a model for VT NDCAP once VY's active decommissioning is complete.

• Panel Membership Changes & Administrative Items: Panel Chair Emily Davis noted that Sara Coffey's term on the Panel expired at the end of August. She declined reappointment. Accordingly, there are now three vacancies on the Panel, the Massachusetts Towns representative, the New Hampshire Towns representative and one of two citizen appoints by the Vermont House Speaker (Sara Coffey's former position on the Panel). Ms. Davis reported that the House Speaker's Office is looking for recommendations for a new appointee. If anyone on the Panel has suggestions, they can be forwarded to the Panel Chair.

 State Nuclear Engineer Tony Leshinskie noted that filling a Panel vacancy is easier when there is a volunteer willing to accept the position. Panelist Chris Campany added that recruiting Panelists was likely easier when "groundworks" discussions for VY's decommissioning were underway. Discussing plans and items such as the PSDAR (Post-Shutdown Decommissioning Activities Report) were likely more interesting than the Panel's more recent meetings discussing steady decommissioning progress. Mr. Campany suggested that the Press present this evening report that the Panel is looking for new members.

Emily Davis proposed drafting a press release highlighting the Panel's recent work and noting that it is looking new members to fill several vacancies. After additional discussion, the Panel agreed with this idea. Ms. Davis agreed to have a draft of the press release available at the next Full Panel

meeting. After additional discussion, the Panel agreed that the proposed press release would focus on filling the vacant Vermont House Speaker's appointee position.

Panel Notifications on NRC Decommissioning Rulemaking: Panel Chair Emily Davis noted that an opportunity for public comments on the NRC's Decommissioning Rulemaking recently closed without the Panel discussing whether it wanted to consider commenting on these propose rules. Ms. Davis asked whether the Panel wished to pursue comments on this Rulemaking.

 State Nuclear Engineer Tony Leshinskie briefly outlined the history of this NRC Rulemaking effort, which began in late 2015, when the NRC published a detailed questionnaire on decommissioning-related topics for which it was considering rulemaking. Vermont State Agencies provided a combined comments set on the questionnaire in early 2016, which were endorsed by Massachusetts, New York, and Connecticut. Follow-up comments were provided to the NRC in mid-2017. The currently proposed NRC rules focus on transitioning an operating power plant to active decommissioning. VYs decommissioning is well past this phase, hence, the currently proposed rules would not impact VY's decommissioning. Accordingly, this rulemaking effort has not been a high priority for Vermont. Nonetheless, when asked to endorse comments from New York State on the currently proposed rules, the State Nuclear Engineer recommended that Vermont endorse them since they reiterated Vermont's comments filed in 2016 and 2017.

 Chris Campany added that Windham Regional Commission has filed comments on decommissioning rulemaking for decades. The comments have not changed much in that time, but WRC is open to hearing or suggesting Panel Positions. Lissa Weinmann suggested that the Panel could endorse decommissioning rulemaking comments filed by other organizations, such as the International Brotherhood of Electrical Workers (IBEW).

Panel Chair Emily Davis asked if any Panel members felt that the Panel should review the NRC's decommissioning rulemaking further. No replies were heard. Consensus was reached that the Panel should consider endorsing IBEW's comments the NRC decommissioning rulemaking.

The Panel then discussed improving notifications of upcoming decommissioning-related actions. After requesting clarification, Tony Leshinskie agreed to keep the Panel informed on any requests from Federal Agency regarding decommissioning-related topics, as well as any significant State actions in decommissioning-related topics.

Panel Chair Emily Davis noted that US Department of Energy published its initial report on received Consent-Based Siting Process comments on September 15. More information on the next steps in the process will be available soon.

• Discussion of Federal Nuclear Waste Policy (FNWP) Committee Activities:

Lissa Weinmann, Chair of the Panel's Federal Nuclear Waste Policy Committee, briefly described the Committee's most recent activities. The Committee has been less active over the summer but

continues to learn about nation nuclear waste policy issues. The Committee had planned to meet on August 22,but that meeting had to be postponed when the scheduled speaker became unexpectedly unavailable.

State Nuclear Engineer Tony Leshinskie provided additional details. Oliver Edelson, Legislative Assistant to California Congressional Representative Mike Levin has agreed to speak to the FNWP Committee. Congressman Levin co-chairs the Congressional Spent Nuclear Fuel Solutions Caucus, which Mr. Edelson administers. From preliminary discussions with Mr. Edelson, the Caucus is in a learning phase much like the FNWP Committee is. The Caucus has begun outreach to other organizations interested in nuclear waste policy issues. Opening a discussion with the Caucus could be beneficial for the Panel.

Based on Mr. Edelson's availability, the FWNP Committee's next meeting has been rescheduled to Monday, October 3 from noon to 1:30 PM.

• **General Public Comments:** The Panel was thanked for tonight's discussions on improving public outreach.

December 12, 2022 (this section will be finalized after the December 12 meeting)

Much like the Panel's May and September meetings, the December 12 meeting largely consisted of reports from NorthStar and several State Agencies on recent VY decommissioning activities. The Panel's Annual Report was finalized and Election of Officers was conducted. With 13 Panelists in attendance at the start of the meeting, a quorum was present throughout the meeting (9 Panelists required for quorum).

• NorthStar Update on VY Site Decommissioning Activities:

 September 2022. (Slides for this presentation are available from the Panel's website.) It was noted that the NorthStar continues to work without an OSHA Recordable Lost Time Accident since starting VT Yankee's active decommissioning in January 2019. The NRC has issued no cited violations during this time. Progress on dismantling Reactor Building (RB) components and the demolition of other onsite structures was described. Demolition of the Control Block Building (which housed the Control and Computer Rooms) is complete, as is demolition of the Containment Access Building. Demolition of the Reactor Building Airlock is underway. Preparations for

NorthStar Panelist Corey Daniels summarized decommissioning activities completed since

Turbine Building demolition continue.

On October 19, VY's Greater-Than-Class C (GTCC) low level radioactive waste was moved to the ISFSI. The GTCC waste consists of several highly contaminated VY Reactor Vessel (RV) internal components which had been stored temporarily in VY's Spent Fuel Pool following their removal from the RV. The GTCC waste is stored in a Non-Fuel Waste Container, which is similar to the dry casks used to store VY's spent nuclear fuel on the ISFSI pads.

Confirmatory radiological surveys at the Cooling Towers site were conducted during the week of November 14 by an independent contractor (Oak Ridge Institute for Science and Education). The monorail system in the new accessway between the Reactor and Turbine Buildings is fully operational. Clearing of Torus structure components continues. Demobilization of RV segmentation equipment has completed. Orano's work on the VY decommissioning project has completed.

• Department of Environmental Conservation (DEC) Update:

Graham Bradley, Hazardous Sites Manager in DEC's Waste Management and Prevention Division outlined the Agency of Natural Resources (ANR) / DEC's recent interactions with VY. (Slides for this presentation are available from the Panel's website.) Regular status calls, draft permit and corrective action plan reviews continue. Sampling programs for non-radiological contaminants continue to show no significant contamination issues at the VY site. No unexpected site contaminations have been identified thus far. ANR/DEC continues to work closely with NorthStar's remediation contractor, Haley & Aldrich, and DEC's consultant, Atlas, on plans for addressing potential contaminant issues at VY's previously identified Areas of Concern (AOCs). DEC is closely following the remediation of the drain lines for the VY's abandoned onsite Chemistry Lab (located in a gutted section of the Turbine Building).

• Public Service Department (PSD) Update:

Jim Porter, PSD Director for Public Advocacy outlined PSD's fiscal oversight of the VY Decommissioning project required by the Memorandum of Understanding (MOU) in effect as part of NorthStar's purchase of VY. Nick Capik and Mark Gymr of Four Points Group (FPG), PSD's consultants for overseeing the project, were also present to provide additional information, as needed. (Slides for this presentation are available from the Panel's website.) PSD's financial and technical oversight role was outlined similarly to the report provided at the May and September Panel meetings. Regular site visits by FPG are conducted to observe completed work. The most recent visit was on November 30. The observed project progress was consistent with that described in NorthStar's most recent status reports.

Overall, NorthStar remains on track to complete the project on schedule with the currently available funding.

• **During Panel Questions**: In response to a question from Panelist Bill Irwin, Corey Daniels indicated that building intrusion water continues to be collected as necessary. The water is initially held in storage (frack) tanks and is then shipped offsite for disposal.

• In response to questions from the Public: Corey Daniels indicated that all radioactive materials shipped offsite are sent to Waste Control Specialists (WCS) facilities in Texas. However, some pre-release (non-radiological / non-hazardous) materials are shipped to industrial disposal facilities. He also clarified that some parts of the Reactor Vessel are being shipped offsite since

545	they still (qualify as Low-Level Radioactive waste. Only spent nuclear fuel qualifies as High-Level
546	Radioacti	<mark>ve Waste.</mark>
547		
548	• In t	the Early General Public Comments: The Panel was asked to continue work on
549	<mark>improvin</mark> ;	g its public outreach. Concern was expressed that Panel meetings needed to be
550	<mark>publicize</mark> c	<mark>d more.</mark>
551		
552	• Dis	cussion of Federal Nuclear Waste Policy (FNWP) Committee Activities:
553		nmann, Chair of the Panel's Federal Nuclear Waste Policy Committee, briefly described
554		nittee's most recent activities. The Committee met on October 5 and December 5. The
555		meeting featured a presentation by Mr. Oliver Edelson, Legislative Assistant to
556		Congressional Representative Mike Levin. Congressman Levin co-chairs the
557		ional Spent Nuclear Fuel Solutions Caucus, which Mr. Edelson administers. The
558	presentat	ion discussed several bills recently introduced in Congress that could address national
559	<mark>spent nuc</mark>	e <mark>lear fuel issues.</mark>
560		
561	At the Dec	cember 5 meeting, the FNWP Committee members brainstormed for nuclear waste
562	policy ite	ms to pursue further in 2023. The Committee agreed to meet next on XXXXXX XX, 2023.
563		
564	• Dra	oft Annual Report for 2022:
565	<mark>A first dra</mark>	of the Panel's 2022 Annual Report to the Legislature, authored primarily by State
566	<mark>Nuclear E</mark>	ngineer Tony Leshinskie, was reviewed. Directions for completing the report by its
567	<mark>January 1</mark>	5, 2023 were authorized.
568		
569	• Ele	ction of New Panel Officers: In separate votes, XXXXXXX was elected Panel Chair and
570	XXXXXX v	vas elected Panel Vice-Chair for terms of 1 year. The Panel thanked Emily Davis and Josl
571	Unruh for	their service as Panel Chair and Vice-Chair, respectively, in 2022.
572		
573	• Ger	neral Public Comments: Emily Davis and Josh Unruh were thanked for their service as
574	Panel Cha	ir and Vice-Chair, respectively, in 2022.
575		
576	IV Major N	Milestones and Activities at the Vermont Yankee Site
577	IV. Major n	diffestories and Activities at the vermont rankee site
	. 1/2	Cita Decommissioning Activities resume following Holiday Proply
578 570	• 1/3	Site Decommissioning Activities resume following Holiday Break Preparations for segmenting the Reactor Vessel (RV) itself begin; Collection of metal
579 580	• 1/3	
580 581		shavings and cutting media from RV internals segmentations underway; Decontamination of exposed RV Cavity & Dryer / Separator Pit (DSP) walls resume;
582		Turbine Building (TB) piping and equipment removals resume; Clearing of Radwaste
583		Processing Building rubble and River Intake Structure components resume; West
584		Cooling Tower foundation demolition resumes; Radioactive waste shipments via
585		railcars resume
		1 anound 1 country

- 1/10 Removal of Control Blade Hydraulic Control Units begins; Preparations to cut new
 accessway between RB & TB lower levels begin;
- 1/12 NRC Second Half 2021 Inspection Exit Meeting no reported issues, findings, or violations
- 1/17 West Cooling Tower foundation demolition completed (except for required radiological surveys); Cleaning / decontamination of TB sumps underway
- 1/24 Draining of RV Cavity & DSP resumes (started 11/8/2021); Travelling Screens
 removed from River Intake Structure
- 1/28 Draining of RV Cavity & DSP completed; Circulating Water System pump motors removed from River Intake Structure
- 596 2/7 First Nuclear Regulatory Commission (NRC) onsite inspection of the year occurs
 597 (2/7 through 2/10)
- 598 3/7 RV Bellows removal begins; RV draining for eventual segmentation underway;
 599 New TB personnel entrance cut into Lube Oil Storage Room west wall
- 600 3/9 Current phase of River Intake Structure components removal complete; River
 601 Discharge Structure components removal begins
- 3/10 RV draining completed; removal of remaining RV Head Studs begins
- 3/16 Quarterly groundwater sampling completed
- 3/17 RV Head Studs removal completed; RV metal shavings / cutting media collection & RV internal surface decontamination completed
- 3/24 RV Bellows removal completed; RV Nozzles cutting begins
- 4 3/31 NorthStar files required Annual VY Decommissioning Trust Fund and Spent Fuel
 Management Fund reports
- 3/31 Removal of Control Blade Hydraulic Control Units completed
- 4/4 Cutting for new accessway between RB & TB lower levels begins
- 4/4 Second NRC onsite inspection of the year occurs (4/4 through 4/7)
- 4/14 VY "Tabletop" Site Emergency Drills Completed
- 4/18 Radiation Control Area (RCA) entrance relocated to TB Lube Oil Storage Room
- 4/26 Diesel Fire Pump & Circulating Water System Pumps removed from River Intake 615 Structure
- 4/29 Site staff in remaining RB & TB offices relocated to Plant Support Building & adjacent
 office trailers; Onsite Chemistry Lab moved to Gate House #2
- 5/1 VY Start-Up Transformers disconnected from onsite switchyard, resulting in RB & TB transition to "cold & dark" conditions
- 620 5/2 RV segmentation begins; removal of abandoned RB & TB electrical systems begins;
 621 cable clearing and dismantling of VY Control Room begins
- 5/6 First RV "ring cut" segmentation completed; component removals from River Intake & Discharge Structures complete (concrete structures to be removed later)
- 5/9 Excavation / underground pipes & foundations removal at Cooling Towers begins
- 5/13 Cutting for new accessway between RB & TB lower levels completed
- 5/23 Internal demolition (gutting) of TB "plant services" module begins

628 629	•	5/30	Materials Transfer "monorail" construction through RB & TB lower levels accessway begins
630	•	6/1	Annual site roadway assessment completed (required by Town of Vernon)
631	•	6/10	RV Nozzles cutting completed
632	•	6/13	VY Control Room dismantling completed; VY Cable & Switchgear Rooms dismantling
633			begins
634	•	6/13	Third NRC onsite inspection of the year occurs (6/13 through 6/17)
635	•	6/16	New NRC Project Manager for VY Decommissioning visits site
636	•	6/22	Quarterly groundwater sampling completed; Annual groundwater sampling report
637			submitted for DEC review
638	•	6/29	Fifth & final RV "ring cut" segmentation completed
639	•	6/30	1.3 million working hours without an OSHA recordable injury at VY celebrated
640	•	7/5	Torus Structure segmentation begins
641	•	7/11	Excavation for remediation & removal of VY Interim Off-Gas (IOG) System begins
642	•	7/12	NRC First Half 2022 Inspection Exit Meeting – no reported issues, findings, or
643			violations
644	•	7/18	Excavation / structures removal at Cooling Towers site completed; regrading at
645			Cooling Towers site begins
646	•	7/25	RV Lower Head removal cutting & Cooling Tower spray pond demolition begin
647	•	8/1	IOG System structures demolition begins
648	•	8/1	Fourth NRC onsite inspection of the year occurs (8/1 through 8/4); Preliminary
649			License Termination Plan (LTP) meeting held at site
650	•	8/4	RV Lower Head removed from RV Cavity; segmentation for offsite disposal begins
651	•	8/16	NRC onsite for follow-up to 8/1 to 8/4 inspections
652	•	8/18	RV Lower Head segmentation completed
653	•	8/22	Torus Structure sludge removal begins; IOG System demolition completed
654	•	8/29	Excavation to remediate former Effluent Stack site begins
655	•	9/2	Torus Structure sludge removal completed; VY Cable & Switchgear dismantling
656			completed; final preps for demolishing "Control Block" building underway;
657		0.415	demobilization of RV segmentation equipment underway
658	•	9/15	Demolition of Control Block building begins
659	•	9/29	Demolition of Control Block building completed
660	•	9/30	Regrading at Cooling Towers site completed; Final radiological surveys at
661	_	10/2	Cooling Towers site begin
662	•	10/3	Fifth NRC onsite inspection of the year occurs (10/3 through 10/6)
663	•	10/4	NRC assigned License Termination Inspector visits site
664	•	10/6	Final radiological surveys at Cooling Towers and IOG System sites completed
665	•	10/10	DEC issues revised VY river discharge permit for public comment
666	•	10/10	RB Recirculating Water System (RWS) components removal begins
667	•	10/12	Onsite Radiological Emergency Drill completed
668	•	10/17	Demolition of Orano onsite Horizontal Transfer (radwaste) Storage modules begins

- 669 10/19 Greater-Than-Class C Radioactive Waste moved to VY Dry Cask Storage Pad 10/21 Last container of RV segments shipped to Waste Control Specialists 670 10/24 Orano demobilization from VY site begins 671 672 10/27 RWS Pump Motors removed 673 10/31 Equipment removals from RB airlock & Containment Access Building begin 674 11/7 Final draining & decontamination of Spent Fuel Pool begins; components clearing in 675 RB Radwaste Clean-Up System Room underway 676 11/10 Demolition of Orano Horizontal Transfer Storage (HTS) modules completed 677 11/14 DEC approves revised VY river discharge permit 678 11/14 Sixth NRC onsite inspection of the year occurs (11/14 through 11/17); NRC Contractor conducts independent, confirmatory survey at Cooling Towers site 679 11/14 Demolition of Containment Access Building begins; RB Airlock equipment removals 680 681 completed 11/15 Demolition of Containment Access Building completed 682 11/21 Demolition of RB Airlock begins 683 684 11/22 Clearing of Orano HTS debris completed (last Orano task at VY site) 685 11/23 Orano demobilization from VY site completed 11/28 Excavations at former IOG System site covered and regraded; area cordoned-off 686 687 as radiologically clean
 - V. Nuclear Decommissioning Trust (NDT) and Site Restoration Trust (SRT) Fund Updates (Based on latest available data for 2022).

694	NDT	SRT
695	\$276.3 M Balance on December 31, 2021	\$56.9 M Balance on December 31, 2021
696	\$247.9 M Balance on March 31, 2022	\$52.8 M Balance on March 31, 2022
697	\$226.8 M Balance on June 30, 2022	\$52.2 M Balance on June 30, 2022
698	\$203.1 M Balance on September 30, 2022	\$50.8 M Balance on September 30, 2022
699	\$196.0 M Balance on October 31, 2022	\$50.6 M Balance on October 31, 2022
700	\$XXX.X M Balance on December 31, 2022	\$XX.X M Balance on December 31, 2022

Monthly balances for the NDT and SRT are available at:

• 12/20 Demolition of RB Airlock completed

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706 707 https://publicservice.vermont.gov/content/trust-balances.

Summaries of monthly expenditures for the Vermont Yankee Decommissioning Project are available: https://publicservice.vermont.gov/content/public-reports.

VI. Spent Nuclear Fuel Status at Vermont Yankee

- 709 Transfer of VY's entire spent fuel inventory to dry cask storage was completed on August 1,
- 710 2018. A total of 58 dry casks, holding a total of 3,880 spent fuel assemblies, are stored at the VY
- 711 Independent Spent Fuel Storage Installation (ISFSI). While no changes in the configuration of
- 712 VY's dry casks occurred in 2022, on October 19, a new, 59th dry cask containing VY's Greater-
- 713 Than-Class C (GTCC) low level radioactive waste was moved to the ISFSI. (This GTCC waste
- consists of several highly contaminated VY Reactor Vessel internal components which had been
- stored temporarily in VY's Spent Fuel Pool following their removal from the RV.) With this
- move, all VY GTCC waste resides at the VY ISFSI. VY's spent fuel will remain at the VY ISFSI until
- 717 the US Department of Energy fulfills its obligation to provide a national spent nuclear fuel
- 718 repository. VY's GTCC waste will remain at the VY ISFSI until a US radioactive waste disposal
- 719 facility is licensed to accept GTCC waste.

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- A total of 6 vacant cask spaces remain on VY's ISFSI pads. Four of these are required should the
- arrangement of the dry casks on the two ISFSI pads need to be changed for any reason. The
- remaining two spaces were designated for storing additional VY GTCC Low Level Radioactive
- Waste. Early (circa 2014) GTCC volume estimates suggested that VY could require as many as
- 725 three GTCC waste casks. More refined estimates (circa 2018 and later) determined that only one
- 726 GTCC waste cask would be necessary.

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VII. Significant Vermont Yankee Site Changes

- 729 Monitoring of the Vermont Yankee Spent Nuclear Fuel is controlled from the site's Central Alarm
- 730 Station (CAS) Building, which became operational on August 23, 2018. No significant changes to
- 731 Vermont Yankee's spent fuel monitoring programs occurred during 2022. All Vermont Yankee
- 732 site changes occurring in 2022 resulted from the continuation of decommissioning activities
- 733 which commenced on January 11, 2019.

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- The following onsite structures were demolished during 2022:
- Control Room Block (Building)
 - Containment Access Building
 - Interim Off-Gas System Structures
 - Orano Horizontal Transfer Storage Modules (reinforced concrete structures used for temporary radwaste storage)
 - "Plant Services" Building (partial demolition of a section of the Turbine Building)
- River Intake & Discharge Structure major components (structures themselves remain)
 - Several below grade Cooling Tower structures
- Abandoned security structures & barricades (none of which impact the VY ISFSI)

Additionally, the power transformer connections to the Reactor and Turbine Buildings were disconnected on May 1, disconnecting these buildings from the local power grid. By doing so, the wholesale removal of electrical connections within these buildings could safely begin.

Segmentation and removal of the Reactor Vessel was completed in October. RB demolition efforts have turned to removing major components from abandoned reactor systems. Similar component removals will continue throughout 2023. To help facilitate these component removals, a new accessway between the Reactor and Turbine Building lower levels was cut. A monorail system for moving RB component segments through this accessway for packaging and offsite disposal became operational in November.

The partial demolition of the Plant Services section of the Turbine Building has resulted in two significant onsite changes. Personnel access into the Reactor and Turbine Buildings is now through a new doorway cut into the TB Lube Oil Storage Room. The site's previous Radiation Protection Checkpoint (site of the previous personnel accessway for both buildings) has been demolished. Radiation Protection Checkpoint functions are now performed in the Lube Oil Storage Room and Gatehouse #2. Additionally, the Radiation Protection Checkpoint's onsite Chemistry Laboratory has moved to Gatehouse #2.

The concrete pads for the previously demolished Shipping and Receiving Warehouse and the Advanced Off-Gas (AOG) Building remain in place. The below grade structures for the AOG Building and the Transformer pad also remain in place.

No significant onsite road repairs were required this year. Maintenance for the onsite rail spur occurred on an as needed basis but did not impact radioactive waste and debris shipments to offsite facilities.

VIII. Vermont Yankee Water Management Program

• Rainfall at the VY site during 2022 returned to more typical annual values (rather than the unusually high 2021 rainfall). Accordingly, the rate of groundwater entering the Turbine Building in 2022 is similar to rates seen in 2018 through 2020.

In leakage rates ranged between 200 and 700 gallons per day in 2022
 At End of Year, the rate was roughly 300 gallons per day (similar to previous end of

year rates).

o In leakage remains below rates initially seen in 2015

Roughly 450,835 gallons of in leakage water have shipped in 2022

 All VT Yankee water shipments were sent to Waste Control Specialists (WCS) NRClicensed disposal site in Andrews County, Texas during 2022.

 No water has shipped to US Ecology's hazardous waste disposal facility in Grandview, Idaho, even though Vermont Yankee received NRC approval in 2021 to ship up to 2,000,000 gallons of contaminated water to this facility. Vermont Yankee

- was previously allowed to ship a total 200,000 gallons of contaminated water to this facility during 2019 and 2020.
 - o 20 in-leakage water shipments occurred in 2022, all shipments made were via tanker rail cars.
 - Each in-leakage water shipment contained no more than 0.004 Curies of radioactive material
 - o Groundwater shipments to WCS facilities continue "as-needed."
 - A total of 1,709,000 gallons of in-leakage water have been shipped to date
 - The system of water diversion wells installed in 2020 along the Turbine Building periphery to mitigate future water shipments remains in use. However, this system does not address all potential intrusion water sources. Diverted, uncontaminated water is discharged to the Connecticut River on an as-needed basis. Each discharge is limited to $\sim 15,000$ gallons per day.
 - VY completed shipping a roughly900,000 gallon inventory of contaminated Process Water (water from abandoned VY systems) previously stored in the Suppression System Torus to WCS facilities. Shipments of this inventory began in 2021.
 - ~23,000 gallons per shipment

- 20 shipments (438,000 gallons) shipped in 2022
- During 2022, VY also shipped roughly 288,000 gallons of contaminated water previously
 used in the Spent Fuel Pool to WCS facilities. This was the last Process Water inventory at
 the site.
 - ~23,000 gallons per shipment
 - 13 shipments (entire inventory) shipped in 2022
 - Each Process Water shipment contained between 0.065 and 0.1 Curies of radioactive material

IX. Decommissioning Waste Shipments Summary

A summary of radiological and hazardous waste shipments made from the Vermont Yankee site during 2022 follows.

IX.A Radioactive Waste Shipments Summary

An annual summary of Vermont Yankee's radioactive waste shipments is published in mid-May of the following calendar year as part of the "Radioactive Effluent Release Report" filed with the US Nuclear Regulatory Commission and the Vermont Public Service Department. Preliminary radioactive waste volume data available as of November 21, 2022 indicates that approximately 300,000 cubic feet of radioactive waste was shipped from the Vermont Yankee site during 2022 (similar to radioactive waste volumes shipped in 2020 and 2021). The total weight of the waste shipped in 2022 exceeds 19,000,000 pounds (>9,500 tons). The total radiological activity of the shipped waste is 11,100 Curies (somewhat lower than the 27,460 Curies shipped in 2021, but well up from 522.8 Curies and 126,8 Curies shipped in 2020 and 2019, respectively). All 2022 calendar year radioactive waste shipments were sent to Waste Control Specialists' (WCS)

829	disposal facility Andrews County, Texas. 152 radioactive waste shipments were made in 2022;
830	122 of these were made via railcar. The remaining 30 shipments were made by truck.
831 832	Based on data provided by NorthStar in response to Panel questions in April 2021, the total
833 834	activity of radioactive waste stored at the VT Yankee site is estimated as follows:
835	• Total activity stored at the VY Independent Spent Fuel Storage Installation (ISFSI), consisting
836 837	of 3880 spent fuel bundles stored in 58 spent fuel cannisters: 117,176,000 Curies (roughly 2,054,000 Curies per cannister)
838 839	The Greater Than Class C radioactive waste cask recently moved to the VY ISFSI contains
840 841	approximately 175,000 Curies.
842	IX.B Hazardous Waste Shipments Summary
843 844	 6 tons of construction and demolition debris was shipped to the following facilities:
845	 Resource Waste Services, Salem, NH
846	 74 cubic yards of asbestos was shipped to the following facilities:
847	 Minerva Landfill, Waynesburg, OH
848	o WMNH Tree, Rochester, NH
849	 609,360 pounds of ferrous and non-ferrous scrap metal was shipped to the following
850	facility for recycling:
851	 Mattuchio Scrap Metal, Everett, MA
852	
853	X. Vermont Congressional Delegation
854	
855	While Vermont Congressional Delegation Staff did not formally speak at any NDCAP Full Panel or
856	NDCAP Federal Nuclear Waste Policy Committee meetings during 2022, Staff from Senator
857	Bernie Sanders' and Congressman Peter Welch's Offices have kept Panel Leadership apprised of
858	DOE and NRC activities and publications of potential interest to the Panel. Most of these
859	communications have come from Rebecca Ellis and Alex Piper of Congressman Welch's Office
860	and Haley Pero of Senator Sanders' Office.
861	
862	Communications with Congressman Welch's Office were especially helpful in arranging for Mr.
863	Oliver Edelson from California Congressman Mike Levin's Office to speak at the Federal Nuclear
864	Waste Policy Committee's October 3 meeting regarding the activities of the Congressional Spent
865	Nuclear Fuel Solutions Caucus. Details of this presentation are available in Section XI.B of this
866	report.
867	
868 869	Links to bills nuclear decommissioning and spent fuel policy related bills that Senator Sanders and Congressman Welch have either sponsored or supported are available through the NDCAP

Federal Nuclear Waste Policy Committee webpage at:

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https://publicservice.vermont.gov/content/vt-ndcap-federal-nuclear-waste-policy

Following the announced retirement of Senator Patrick Leahy and the subsequent election of Congressman Welch as Vermont's newest Senator, NDCAP will work to assure that communication between the Panel and Senator Sanders, Senator-Elect Welch, and Congresswomen-Elect Balint's Offices continue to be a valuable information resource for Panel activities.

XI. Current NDCAP Committees

XI.A NDCAP Issues Committee

The Issues Committee, formed in 2015 and reconstituted in 2019, is intended to provide recommendations for topics to be discussed at meetings of the Full Panel. The Issues Committee did not meet during 2022. For 2022, the Issues Committee's function (selection of meeting topics) was performed by the Full Panel at its regular meetings, with additional interactions between the Panel Chair and the State Nuclear Engineer as needed.

XI.B NDCAP Federal Nuclear Waste Policy Committee

NDCAP created the Federal Nuclear Waste Policy Committee in December 2020 as a means for the Panel to learn more about US national spent nuclear fuel storage and disposal issues. The Committee is developing recommendations on US nuclear waste policies for the Full Panel to consider as potential Advisory Opinions on these subjects. The Committee consists of the following Panel members: Lissa Weinmann (Committee Chair), Corey Daniels, Maddy Arms, and Marvin Resnikoff. No other Panel members attended any of the Committee's meetings held in 2022. The Committee is administered by State Nuclear Engineer Tony Leshinskie.

The Committee met 5 times in 2022, all via Teams webcast, to learn more about current US national spent nuclear fuel storage and disposal policies. Several of the Committee's 2022 meetings included guest speakers from individual nuclear waste policy stakeholders. Brief summaries for each meeting are included below. The Committee continued to compile a reading list of relevant materials. This list is available at the Committee's webpage at: https://publicservice.vermont.gov/content/vt-ndcap-federal-nuclear-waste-policy

This webpage also includes recordings of the individual Committee meetings.

910 911	Through the course of 2022, the Committee built on its 2021 Calendar Year work. A summary of this earlier work is available at:
911	https://publicservice.vermont.gov/content/federal-nuclear-waste-policy-committee-rev-2-
913	draft-report
	<u>urait-report</u>
914	1
915	January 31, 2022 Committee Meeting
916	The Committee began the year by assessing the US Department of Energy's December 2021
917	Request for Information (RFI) regarding the temporary, consolidated storage of spent nuclear
918	fuel using a Consent-Based approach. This RFI is available at:
919	https://www.federalregister.gov/documents/2021/12/01/2021-25724/notice-of-request-for-
920	information-rfi-on-using-a-consent-based-siting-process-to-identify-federal
921	Firstly and details on this Consent David Citing and consent and available at
922	Further details on this Consent Based Siting process are available at:
923	https://www.energy.gov/ne/consent-based-siting
924	Based on discussions and public input from the January 31 meeting, the Committee drafted an
925	
926 927	Advisory Opinion that the Full Panel discussed at its February 28 meeting. The Committee's draft Opinion is available at:
927 928	https://publicservice.vermont.gov/content/vt-ndcap-draft-advisory-opinion-usdoe-consent-
929	based-siting-request-information
930	based-sitting-request-information
931	As noted in Section III, the Full Panel approved a version of this Advisory Opinion. The approved
932	version is available in Appendix A.
933	version is available in rippendix in
934	March 28, 2022 Committee Meeting
935	At this meeting, representatives from Deep Isolation, Inc. outlined their proposed alternative for
936	geologic spent fuel repositories. A Deep Isolation repository would store spent fuel in a series of
937	horizontal drilled holes between 1 to 2 miles in depth, using current technology for oil drilling.
938	The horizontal portion of each storage hole (where fuel assemblies would be stored) could be 2
939	to 3 miles long. Individual repository holes would store fuel assemblies end-to-end, with up to
940	200 fuel cannisters (individual fuel assemblies) per borehole. Further information on Deep
941	Isolation's proposal is available at:
942	https://www.deepisolation.com/nuclear-waste-solutions/
943	
944	While most of Deep Isolation's research into this proposal assume a shale geology, other bore
945	hole depths for other geologies can be determined. Much of Deep Isolation's current research is
946	intended to establish site selection criteria
947	
948	May 23, 2022 Committee Meeting
949	The May 23 meeting featured a presentation by representatives of Holtec International (Joy
950	Russell and Kim Manzione), who provided an overview of its spent nuclear fuel storage systems
951	used at Vermont Yankee. Aging management of these systems and proposed long-term spent

fuel storage was discussed, resulting in a lively questions and answers period. From the presentation and subsequent discussion, it was clear that efforts to qualify the spent fuel storage systems beyond their currently licensed 40-year use period remain under development. Holtec remains confident that the licensed use period for its spent fuel storage systems can be extended to as much as 100 years. Holtec's presentation slides provided for this meeting are available at: https://publicservice.vermont.gov/content/holtec-spent-fuel-storage-aging-management-presentation-vt-ndcap-nuclear-waste-policy.

October 3, 2022 Committee Meeting

The October 3 meeting was devoted to a discussion with Mr. Oliver Edelson, Legislative Assistant to California Congressional Representative Mike Levin. Congressman Levin, whose district includes the actively decommissioning San Onofre Nuclear Generation Station, co-chairs the Congressional Spent Nuclear Fuel Solutions Caucus, which Mr. Edelson administers.

 The meeting discussion outlined the Caucus' current efforts. Presently, the Caucus is focused on getting various sides in spent nuclear fuel policy debates to talk to each other. The US Congressional Representatives that comprise the Caucus are in a learning phase to better grasp spent fuel-related issues. As part of this, the Caucus has begun meeting with other organizations interested in nuclear waste policy issues.

Part of the meeting discussion touched on several proposed bills that would address spent fuel issues to some extent. The Sensible, Timely Relief for America's Nuclear Districts Economic Development (STRANDED) Act was mentioned as one option. The Increasing Nuclear Safety Protocols for Extended Canister Transfers (INSPECT) Act, which would require a Resident NRC Inspector at decommissioning nuclear power plants until all spent fuel has been removed from a site's spent fuel pool(s) was also discussed.

Mr. Edelson's presentation to the Committee is available at:

https://publicservice.vermont.gov/content/presentation-congressional-spent-nuclear-fuel-solutions-caucus.

Links to the STRANDED and INSPECT bills are also available from the Committee website.

A key point to the meeting's discussion was that selecting a spent nuclear fuel repository site (regardless of whether an interim or permanent facility is being considered) is not quick work. Finland recently established its national spent fuel repository after a 35 year siting effort. Sweden, Switzerland and Canada have made recent progress following sustained (multi-year) siting efforts.

December 5, 2022 Committee Meeting (To be finalized after the December 5 meeting)

991 The December 5 meeting provided the Committee with an opportunity review its 2022 activities.

Potential recommendations for changes in Federal nuclear waste policies were brainstormed.

993	The Committee agreed to consider the following items in future meetings as potential
994	recommendations to the Full Panel:
995	
996	• Recommendation #1
997	• Recommendation #2
998	• Recommendation #3
999	
1000	The summary of Committee activities included in the VT NDCAP 2022 draft Annual Report was
1001	reviewed and revised based on feedback from Committee members and members of the public
1002	present at the meeting.
1003	
1004	XII. Meeting Schedule and Priorities for 2023
1005	
1006	During the Panel's December 12 meeting, the Panel reached consensus on the following meeting
1007	dates for 2023:
1008	
1009	 January 10: Special Meeting for approval of the 2021 Annual Report
1010	 February 28: Tentative meeting for discussing potential filings in response to the US
1011	Department of Energy's Consent-Based Siting Request for Information
1012	 May 9: Regular meeting discussing and assessing the Decommissioning Project Annual
1013	Status Reports (required by PUC Case 8880)
1014	 September 19: Regular meeting (agenda items to be determined)
1015	 December 12: Regular meeting (agenda items to be determined)
1016	
1017	The Panel continues to consider improvements in its public outreach. As noted in the
1018	September 19 and December 12 meeting summaries (see Section III), the Panel intends to use
1019	parts of its new \$35,000 annual budget to improve its webcast / hybrid meeting capabilities, and
1020	identify additional options for public outreach.
1021	
1022	XIII. Panel Composition and Duties Change Recommendations
1023	
1024	As part of the Panel Duties outlined in Part II of the Panel Charter (see Section II of this Report),
1025	the Panel "shall assess further changes to the Panel's membership or duties as appropriate." The
1026	most recent changes in Panel composition and duties are those approved by the 2021
1027	Legislature in Act 54. The Panel currently has no additional change recommendations for its
1028	composition or duties.
1029	
1030	

1032	
1033	March 3, 2022
1034	US Department of Energy
1035	Office of Nuclear Energy
1036	1000 Independence Ave. SW
1037	Washington DC 20585
1038	
1039	Re: Comments on the U.S. Department of Energy 'Request for Information on
1040	Using a Consent-Based Siting Process to Identify Federal Interim Storage
1041	Facilities'
1042	
1043	To Whom It May Concern:
1044	
1045	The Vermont Nuclear Decommissioning Citizens Advisory Panel submits the enclosed
1046	comments (Advisory Opinion) in response to the Department's December 2021
1047	'Request for Information on Using a Consent-Based Siting Process to Identify Federal
1048	Interim Storage Facilities.' These comments were approved by the Panel at a Special
1049	Meeting held on February 28. Presentations and other details from this meeting are
1050	available at the Panel website: https://publicservice.vermont.gov/electric/ndcap .
1051	
1052	Additionally, the Panel wishes to thank Dr. Kim Petry, Dr. Erica Bickford, Ms. Natalia
1053	Saraeva and Mr. Rob Howard of the Department for their presentation and
1054	supporting discussion at our February 28 meeting.
1055	
1056	Thank-you for your consideration. We appreciate the opportunity to share these
1057	comments with the Department and look forward to further interactions as the
1058	Consent-Based Siting Process progresses.
1059 1060	Sincerely yours,
1061	Sincerely yours,
1061	
1063	/s/ Emily Davis
1064	Emily Davis, 2022 Panel Chair
1065	Vermont Nuclear Decommissioning Citizens Advisory Panel
1066	

Advisory Opinion Adopted February 28, 2022 1067 1068 Comments on the U.S. Department of Energy 'Request for Information on Using a Consent-Based Siting Process to Identify Federal Interim Storage Facilities' 1069 1070 INTRODUCTION 1071 The Vermont Nuclear Decommissioning Citizens Advisory Panel (VT NDCAP) appreciates the 1072 1073 opportunity to share information and insights on 'Using a Consent-Based Siting Process to Identify 1074 Federal Interim Storage Facilities' and associated questions upon which the Department of Energy 1075 (DOE) seeks public input. 1076 BACKGROUND ON VT NDCAP 1077 1078 The 19 member VT NDCAP was established by an act of the Vermont legislature in 2014. It includes six citizen members, two each to be appointed by the Governor, the Senate President Pro 1079 1080 Tempore and the House Speaker, as well as representation from eleven additional Vermont Yankee 1081 decommissioning stakeholder organizations, including the plant owner and the town where the facility resides, to oversee decommissioning of the Vermont Yankee nuclear reactor, share 1082 1083 information with and receive feedback from the public. 1084 In December 2020, the VT NDCAP voted to establish a committee to learn more about nuclear 1085 spent fuel storage and disposal concerns. The resulting Federal Nuclear Waste Policy Committee 1086 (FNWPC) met monthly in 2021 and continues to meet, studies federal policy options for nuclear waste storage and considers how Vermont Yankee is situated within the national landscape. By 1087 methodically procuring input from Vermont's federal delegation, industry experts and other 1088 1089 stakeholders, the FNWPC accordingly advances the learning goals of VT NDCAP by sharing 1090 findings with the full Panel at regularly scheduled meetings. The Committee may recommend that 1091 the VT NDCAP adopt Committee-approved draft advisory language for the full VT NDCAP's 1092 consideration and potential vote in order to fulfill the Panel's stated purpose under Vermont law to: 1093 "advise the Governor, General Assembly, the agencies of the state, and the public on issues related 1094 to decommissioning." 1095 Some individual VT NDCAP members plan to submit independent information to DOE that may reflect different perspectives on how the US should solve the problem of where and how to store 1096 the nation's high level radioactive waste. The value of this document is that it reflects basic 1097 1098 agreement among Committee members on the following points, voted on at a special session of the 1099 full VT NDCAP on February 28, 2022, a recording of which is available at: 1100 https://youtu.be/W7ZAHGUaD4M 1101

1103 1104 1105 1106	DOE RFI Area 3: Interim Storage as Part of a Waste Management System / Questions: 3 and 4: To what extent should development of an interim storage facility relate to progress on establishing a permanent repository? What other issues should DOE consider in developing a waste management system?
1107 1108 1109 1110 1111	In 2015, the Congress authorized a two-year consent-based siting process for the general siting for nuclear waste disposal facilities that was not limited to 'interim' sites. The process to date has not resulted in a successful siting of any waste disposal facilities. VT NDCAP believes management of the nation's nuclear waste management system must not depend upon inconsistent congressional appropriations.
1112 1113 1114 1115 1116	VT NDCAP recommends that development of a consolidated interim storage facility (CISF) should remain directly coupled to establishing a permanent repository as required under the Nuclear Waste Policy Act. In developing an integrated waste management system, VT NDCAP believes that DOE and the Administration should focus on amending existing law rather than relying on agency rulemaking.
1117 1118 1119 1120 1121 1122 1123	Appropriate geomorphology and geohydrology of potential site selection for a permanent repository should be a limiting and qualifying factor in any consent-based siting. Prioritizing locations with sound environmental suitability will likely aid in establishing public acceptance and trust to obtain consent-based siting. With proper planning, moving high level radioactive waste from independent fuel storage installations (ISFSIs) should only happen one time. Any CISF(s) to be constructed and operated should ideally be sited at or in close proximity to a location that is also acceptable and approved for a permanent deep geologic repository. Any CISF or permanent repository should be subject to the same EPA standards other energy producers must adhere to.
1125 1126 1127	Further, asking a community to consent to act as an 'interim' site in the absence of any progress toward a permanent site will continue to undermine confidence in the DOE 'consent-based siting' process.
1128 1129 1130	The VT NDCAP supports the application of the consent-based siting process to any previously designated high level radioactive waste disposal or storage sites.
1131 1132 1133 1134	DOE RFI, Area 2: Removing Barriers to Meaningful Participation / Question 5: What information do communities, governments, or other stakeholders need to engage with the Department on consent-based siting of federal interim storage facilities?
1135 1136 1137 1138 1139	Communities, governments, local stakeholders, and the nation at large need more information before deciding on the best course of a functioning integrated nuclear waste management system. The Nuclear Regulatory Commission says such waste is safely and securely stored at its current location. An independent and comprehensive economic analysis from the Congressional Budget Office or General Accounting Office on options for nuclear waste should inform how to proceed.
1140 1141	All public comments received in DOE's 2015 to 2017 Consent-Based Siting effort should be available for public review and be considered as part of the DOE's current Request for Information.

1143	ADVISORY OPINION VOTING RECORD
1144	PANEL MEMBERS VOTING YES
1145	Madeline Arms (Town of Vernon); Todd Amato (Town of Vernon); Chris Campany (Windham Regiona
1146	Commission); Sara Coffey (Citizen Appointee); Emily Davis (Citizen Appointee & Panel Chair); Marvin
1147	Resnikoff, Ph.D. (Citizen Appointee); Lissa Weinmann (Citizen Appointee & FNWPC Chair).
1148	
1149	PANEL MEMBERS VOTING NO
1150	None.
1151	
1152	PANEL MEMBERS VOTING TO ABSTAIN
1153	Corey Daniels (NorthStar Vermont Yankee); David Pearson (NorthStar Vermont Yankee);
1154	Jim Porter (VT Public Service Department Designee).
1155	
1156	PANEL MEMBERS ABSENT FOR THIS VOTE
1157	Trish Coppolino (VT Agency of Natural Resources); Dr. Bill Irwin (VT Agency of Human Services); Bob
1158	Leach (Citizen Appointee); Brett Long (VT Agency of Commerce and Community Development); Mark
1159	MacDonald (Vermont Senate); Laura Sibilia (Vermont Legislature); Josh Unruh (Citizen Appointee &
1160	Panel Vice-Chair).
1161	
1162	There are currently two vacancies on the Panel.
1163	END
1164	